Michigan DOT Research Program

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Presentation Outline

- Research Priorities
- Program Overview
- Organizational Structure
- Program Development
- TRB Participation



■ Bridges & Structures

- Non-Destructive Evaluation (NDE) Techniques for Bridges
- Evaluation & Analysis of Decked Bulbed T Beam Bridges
- Develop Design and Construction Guidelines for Strengthening Bridges using Fiber Reinforced Polymers (FRP)
- Development of Non-Proprietary Ultra High Performance Concrete for bridges
- Evaluation of Long Term Performance of Carbon Fiber Polymer Reinforcing in Pre-Stressing and Post Tensioning
- Assess and Develop standards for Accelerated Bridge Construction (ABC) techniques.





- Transportation Safety
 - Improving safety for older drivers
 - Improved inputs for the Highway Safety Manual
 - Evaluation Non-Freeway Rumble Strips Part II
 - Evaluating pavement marking practices and performance
 - Short and long term impacts of speed limit changes
 - Assess the benefits of high tension cable barrier on Michigan roadways
 - Comparison of alternative pedestrian crossing treatments





- Pavements/Materials
 - Development of Empirical Mechanistic Pavement Design Input Values
 - Identifying Best Practices for the use of Recycled Pavement Materials
- Environment & Water Resources
 - Evaluation of sewer and culvert installations.
- Asset Management
 - Wireless Data Collection and Retrieval of Bridge Condition Data
 - Evaluating Roadway Surface Rating Technologies





- Mobility/Operations/Signals
 - Assessing Michigan's Commercial Vehicle Enforcement Strategies and Facilities
 - Evaluating the costs and benefits of mobility investments
- □ Transit
 - Identify barriers and solutions to developing sustainable regional transit systems
 - Evaluation of transit technologies and develop updated transit vehicle specifications
 - Study the potential for utilization and recycling of lithium ion batteries for public transit vehicles
 - Study the feasibility of developing a statewide transit mobility measurement tool





Construction/Geotech

- Effect of Pile Driving on nearby structures
- Predictive Modeling of Freeze Thaw of Frost Susceptible Soils
- Evaluating the short and long term impacts of expedited roadway construction
- Performance evaluation of Subgrade Stabilization using Recycled Materials

Maintenance

- Evaluating the use of Tow Plows
- Monitoring Highway Assets with Remote Technologies
- Evaluation of UAV's for Transportation Purposes





- Intelligent Transportation Systems (ITS)
 - Connected Vehicle Test Track
 - Costs and benefits of ITS Investments
 - Advance Applications of Intellidrive Data Use and Analysis and Processing (DUAP)
- Rail
 - Freight Rail Connectivity



Historical Expenditures

□ 2011 \$5.2 Million

□ 2012 \$7.2 Million

□ 2013 \$7.3 Million

□ 2014 \$12 Million Budgeted



2014 Program Budget

- Approximately \$ 12 Million
- 51 Individual Research Projects (72%)
- 15 Pooled Fund Studies (5%)
- ☐ 7 UTC Partnerships (5%)
- 8 Research Centers of Excellence (2%)
- AASHTO TSP/TRB/SHRP 2 (15%)
- Technology Transfer Seminars (1%)





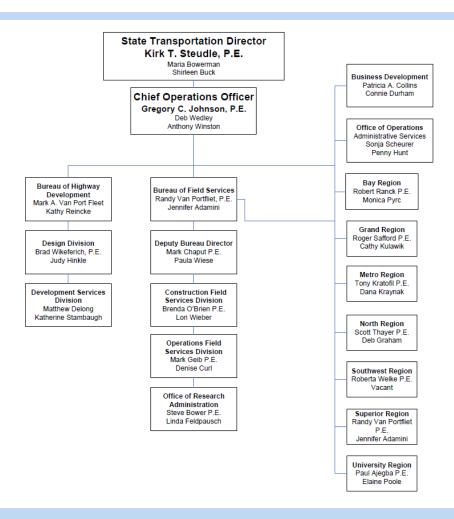
2014 Funding Sources

- MDOT apportions 25% of SPR to SPR Part II
- SPR Part II = \$5 Million
- State Funds = \$2 Million per year
- \$5 Million Supplemental (2014 only)





Organizational Structure





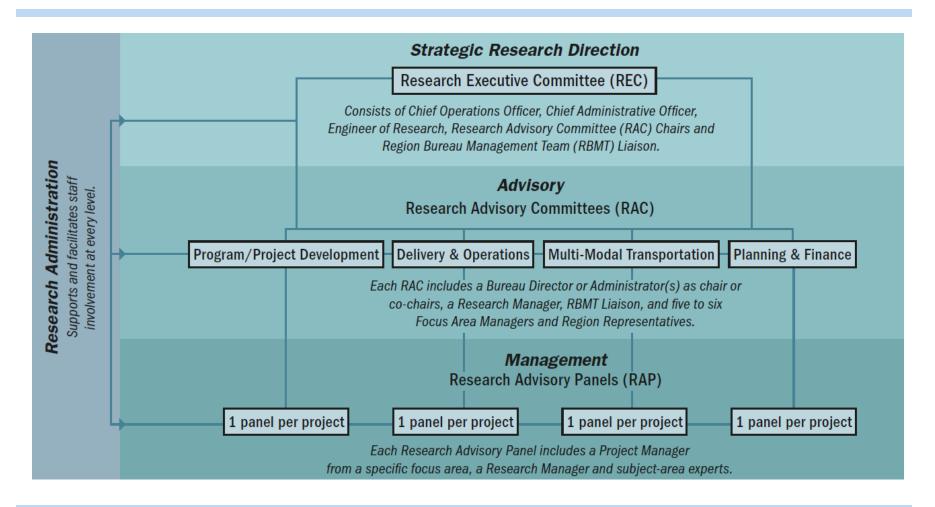
2015/2016/2017 Program Development

- Strategic Priorities (Aug-Sept 2013)
- Call for Ideas (Nov-Dec 2013)
- Idea Development (Jan-April 2014)
- Research Summit (Early May 2014)
- □ Problem Statements Developed for 2015/2016/2017 Projects (May-June 2014)
- 2015 Program Approval/2016-2017 Pre-Program Approval (July-August 2014)





Program Development





Program Development

Research Executive Committee (REC)

REC Co-Chairs: Gregory Johnson, COO & Laura Mester, CAO Engineer of Research: Steve Bower Region Bureau Management Team (RBMT) Liaison to Research: Kim Avery Research Advisory Committee (RAC) Chairs and Co-Chairs: see below

Research Advisory Committee (RAC)
Hwys Program & Project Development
RAC Chair: Mark Van Port Fleet
Addl Member: Brad Wieferich
RBMT Liaison: Kim Avery
Focus Area Managers (FAM): see below
Research Manager: Michael Townley

Bridges & Structures FAM: Dave Juntunen, Matt Chynoweth Region Rep: Steve Katenhus

Environment & Water Resources FAM: Kristin Schuster Region Rep: Bob Batt

Innovative Contracting FAM: Chris Youngs Region Rep: Lori Swanson

Real Estate & Permits FAM: Matt DeLong Region Rep: Jared Boll (Permits) Tom Jay (Real Estate)

Transportation Safety FAM: Mark Bott Region Rep: Kim Zimmer

Rest Areas, Utilities & Landscaping FAM: Terry Frake Region Rep: Will Thompson

Surveys & Automated Design FAM: Dan Belcher Region Rep: lan Weible

Work Force Development FAM: Don Whiteside, Todd White Research Advisory Committee (RAC)
Hwys Delivery & Operations
RAC Co-Chairs: Randy Vanportfliet, Mark Chaput
Addl Members: Brenda O'Brien, Mark Geib
RBMT Liaison: Scott Thayer
Focus Area Managers (FAM): see below
Research Manager. Andre Clover

Construction FAM: Jason Gutting Region Rep: Tom Tellier

Geotechnical & Foundation Design FAM: Dick Endres Region Rep: Jim Siler

Intelligent Transportation Systems FAM: Matt Smith Region Rep: Suzette Peplinski

Fleet/Facility Management & Operations FAM: Sonja Scheurer Region Rep: Janine Cooper

Maintenance FAM: Gary Mayes Region Rep: Will Thompson

Mobility, Systems & Signal Operations FAM: Steve Cook Region Rep: Stephanie Palmer

Pavements & Materials FAM: Curtis Bleech, John Staton Region Rep: Jim Siler

Worker/Facility Safety & Security Emergency Management FAM: Eileen Phifer Region Rep: Gregg Brunner Research Advisory Committee (RAC) Multi-Modal Transportation RAC Co-Chairs: Michael Trout, Tim Hoeffner, Sharon Edgar RBMT Liaison: Paul Ajegba Focus Area Managers (FAM): see below Research Manager: Mark Polsdofer

Aviation FAM: Matt Brinker

Freight & Logistics FAM: Lina Chapman

Freight Rail FAM: Kris Foondle

Intercity Bus FAM: Rob Pearson

Local Transit FAM: Cathy Hudson

Maritime FAM: Larry Karnes

Passenger Rail FAM: Therese Cody

Private/For Hire Passenger Carriers FAM: Michael Frezell Research Advisory Committee (RAC) Planning and Finance RAC Co-Chairs: David Wresinski, Myron Frierson RBMT Liaison: Roger Safford Focus Area Managers (FAM): see below

Research Manager: Mark Polsdofer

Asset Management FAM: Bill Tansil

Contract Administration FAM: Demetrius Parker

Finance FAM: Ed Timpf

Non-Motorized Planning & Development FAM: Deb Alfonso

Program Development FAM: Denise Jackson

Transportation Policy FAM: Polly Kent

Travel Demand Forecasting FAM: Susan Gorski



TRB Participation

- Annual Meeting 25 to 30 Staff Attend (TRB Attendance Template)
- 30 to 35 Staff participate on TRB Committees and Cooperative Research Panels
- TRB participation
 - 70% Managers
 - 30% Staff



Cooperative Research Submittals (2010 to 2013)

- NCHRP Project Proposals
 - 3 Submitted
 - 1 Selected
 - NCHRP 12-97 "Guide Specification for the Design of Concrete Bridge Beams Prestressed with CFRP Systems"
- NCHRP Synthesis Proposals
 - 5 Submitted
 - 1 Selected
 - NCHRP Synthesis 20-05/Topic 44-10 "Synthesis of Research on Non-Nuclear Methods for Compaction Control"





Questions???



